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911
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~~Escape Evasion~~
Incediary, General

**PROGRESS REPORT
FOR
OCTOBER 1960
ON THE
SIGNAL FLARE TESTING
RD 45, TASK ORDER LL**

30 November 1960

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During October 1960 night tests were conducted in the Project Officer's presence to determine the brightness and color of the flares, both from ground and aerial observations.

The flares were burned in three positions (on top of ground, in pits and in pits lined with aluminum foil). Four stations were set up for each of four different manufacturers' red flares. Both red and yellow flares were burned, but in separate experiments. The following ground observations were made:

I. Ground Observations

	On top of ground	In Pits	In Pits Lined With Foil
A. Standard Red	1st place rating	All good	Appeared to have some reflection on smoke. A little more conspicuous than flares in unlined pits.
B. Olin Mathieson Red	Poor	with a	
C. Bristol Red	2nd place	vague	
D. Kilgore Red	3rd place	glow.	
AA. Bristol Yellow	Very Poor	Inconspicuous	A shade less conspicuous than the red.
BB. Kilgore Yellow	Good		

It should be noted that any verticle structure close to the burning flares such as posts, or tall grass, tend to reflect a good amount of light to anyone viewing the burning at ground level. If the burning of the flares is to be made less conspicuous to a ground observer, then such items should be removed.

The following are the aerial observations of the same test. These observations were made during passes in a helicopter at an altitude of approximately 750 ft. and a forward speed of approximately 85 mph.

II. Aerial Observations

	On top of ground	In Pits	In Pits Lined With Foil
A. Standard Red	Very visible from a good distance	Poor visibility until directly overhead on all red flares with A & D the best	Fair
B. Olin Mathieson Red	Poor		Good
C. Bristol Red	Very visible from a good distance		Good
D. Kilgore Red	Fair		Poor
AA. Bristol Yellow	Less dis- tinguishable from distance than the red	Not visible until direct- ly overhead	Poor
BB. Kilgore Yellow			Good

In general, it was noted that the red flares were more distinguishable than the yellow.

During this month, we also completed the last test of the replaced group of Kilgore flares. This test consisted of burning ten of the red Kilgore and ten of the yellow Kilgore flares immediately

after they had been kept in a freezer at -20°F for five days. The following results were noted:

I. International Flare Signal Division (Kilgore) Red

- A. All ten burned to completion.
- B. All of the flares were easy to ignite but were chimneying excessively. Four had loose plastic base plugs. Three had a cracked matchhead and one almost went out midway through burning.
- C. Average time to full flame was 1-1/4 minutes; maximum burning time 38 minutes; minimum burning time 36 minutes; and average burning time 37.2 minutes.

II. International Flare Signal Division (Kilgore) Yellow

- A. All ten of these flares burned to completion.
- B. All of these flares were easy to ignite but had some chimneying. One had a striker loose in the cap and one had a plastic base plug loose.
- C. Average time to full flame was one minute; maximum burning time 31 minutes; minimum burning time 29 minutes; average burning time 30 minutes.

This completes the testing of the railroad fusee type flares, however, since there are funds remaining on the contract, the Project Officer has requested that we obtain Coast Guard approved marine type signal flares and evaluate them in the same manner.

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FINANCIAL STATEMENT

Total Amount of Contract	\$ 3,372.00
Expenditures for October 1960	406.66
Total Expenditures to 31 October 1960	1,899.45
Balance of Contract	1,472.55

Expiration Date: 23 November 1960

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